

TURF MANAGEMENT REPORT

for

DEPARTMENT OF CONSERVATION NELSON MARLBOROUGH CONSERVANCY

August

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TABLE OF CONTENTS

1.	INTRODUCTION	1
2.	PEKETA CAMP GROUND - KAIKOURA	1
3.	GOOSE BAY CAMP GROUNDS - KAIKOURA	2
	3.1 Sedges	2
	3.2 Drill Seeding	2
	3.3 Mower operation	2
4.	NGAKUTA BAY CAMP GROUND - PICTON	2
	4.1. Potential to ryegrass	2
5.	MOMERANGI CAMP GROUND	3
	5.1 Grass species to reduce mowing	3
	5.2 Fertilizer	3
	5.3 Soil loosening	3
	5.4 Cape Weed	3
	5.5 Tree Release	4
	5.6 Poring insect activity	4
6.	LAKE ROTORUA CAMP GROUND - NELSON LAKES NATIONAL PARK	4
	6.1. Grass species to reduce mowing	4
	6.2. Turf establishment	4
	6.3 Fertilizer	5
	6.4 Mowing equipment	5
7.	GRASS SPECIES TRIALS	5
	7.1 Introduction	5
	7.2 Trial Design	5
	7.3 Trial Management	6
	7.4 Turf Establishment	6
8.	CONCLUSION	6

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1. **INTRODUCTION**

The following report provides comment and response to the four questions posed prior to visiting the selected sites.

The questions and sites to visit were:

1. What grass species would allow significantly less mowing maintenance than the existing turf at:
 - * Fyffe House Historic Reserve, Picton
 - * Ngakuta/Mamorangi Bay camp ground, Picton
 - * Lake Rotorua camp ground and picnic area, Nelson Lakes National Park.
2. Would similar seed mixes be appropriate for use in a variety of similar situations in Nelson and Marlborough?
3. Do trials of the new species need to be made at the sites before widespread application, and if so, what is an appropriate trialling regime?
4. What planting regime should be followed to establish and a care for the new turf?

2. **PEKETA CAMP GROUND - KAIKOURA**

The possibility of re-grassing the camp ground to reduce the mowing requirement does not exist at this site but there is the potential to improve the general overall turf quality simply by improving the overall nitrogen inputs to the turf.

The sward is composed of a mixture of *A gropyron*, *Poa pratensis*, *A grostis castellana* (browntop), *danthonia* sp, *brome* sp, flatweeds and storksbill. These species are adapted to the droughty low fertility conditions existing on this sandy site.

A simple process of fertilizing the camp ground after Easter with either urea at 65kg/ha or ammonium sulphate at 125kg/ha each year would help to gradually improve the turf density over time. If application equipment is readily available I would recommend applying the fertilizer in two half rate applications a month apart.

3. **GOOSE BAY CAMP GROUNDS - KAIKOURA**

This is a damper site and is dominant in browntop with a small proportion of ryegrass, some *brome* sp, small bald spots and droughty ridges. There is not enough ryegrass present to warrant re-grassing. This damp site is going to grow prolific browntop anyway. It may be possible to identify small areas of heavier ryegrass density that could benefit from re-grassing in the same manner as for Lake Rotorua but not overall in the camp.

3.1 **Sedges**

I would recommend using Roundup through a rope wick touch weeder to treat sedges in the caravan park area. Choose a quite time and rope the treated area off to prevent Roundup being walked around the camp and killing grass.

Fertilize in autumn the same as Peketa.

3.2 **Drill Seeding**

Both camp grounds have a number of bald and bare spots where campers have left the turf dead. I suggest considering drill seeding both camp grounds each autumn with a 1:3 or 1:5 browntop to fine fescue seed mixture sown through a Duncan triple disc seed drill at 15-20kg/ha. Ideally the mixture should be sown with 20% *Poa pratensis* seed but availability is erratic.

Drill seeding would be beneficial but not essential where it was considered that the coverage of turf was becoming sparse and needed thickening up. Ideally it would be carried out annually for several years.

3.3 **Mower operation**

The Husquavarna ride-on mower should be used solely within the grounds of the camp itself. Rougher areas by the roadside should be mown with a tractor rotary mower. Consider leaving unmown gravelly areas where turf will not grow. They are probably best planted with shrubs.

4. **NGAKUTA BAY CAMP GROUND - PICTON**

This site is for day use only and consists of a large flat mown area beside the sea. The turf is composed of browntop, fine fescue, yorkshire fog, and cocksfoot. The site is relatively damp and grass grows prolifically. It is mown with an Izekei 4-wheel-drive tractor fitted with a rotary slasher. This machine was chosen for its versatility in mowing walking tracks as well.

4.1. **Potential to ryegrass**

The site is already growing low fertility, low producing species and it is doubtful that re-grassing would reduce mowing costs by very much. Furthermore, in a

damp climate such as this the existing species would quickly invade any new sowing of more compact grass species such as hard or fine fescue.

5. **MOMERANGI CAMP GROUND**

5.1 **Grass species to reduce mowing**

The turf in the camp ground is predominantly browntop as you would expect in a high rainfall area. I recommend using a 3:1 or 5:1 fine fescue and browntop mix at **15g/m²** as the main seed sown. Sow any bare spots in the camp ground in autumn.

A steep bank above a stream is a concern. I agree it would be a good idea to shape the bank to smooth the ground to make mowing easier in the short term but long term it would be better planted with shrubs to reduce mowing costs.

I do not recommend any re-grassing to reduce mowing costs. I suggest a minimal turf management programme of nitrogenous fertilization once in autumn and some soil loosening by mini mole ploughing to improve drainage and help eliminate wet spots.

5.2 **Fertilizer**

I recommend applying ammonium sulphate at **2kg/100m²** each autumn immediately after Easter to promote recovery of the turf. Repeat annually for a denser turf cover and fewer weeds. Ideally apply a second application in late August.

5.3 **Soil Loosening**

Use a single bladed mini mole plough or contract Turf Professionals in Blenheim to vibramole the camp ground to loosen the soil and help reduce muddy spots. This work is best carried out in **firm** soil conditions, perhaps in early autumn before Easter. **Make certain you know where underground services are and at what depth before you start.**

5.4 **Cape Weed**

This weed is apparently somewhat susceptible to "Kiwi Care No Weeds" (Versatill) but large established plants tend to be very resistant to any herbicides. A good treatment for cape weed once the majority have been killed is to use Tordon 2G granular herbicide and sprinkler a few granules (half a teaspoon) in the centre of each plant.

5.5 **Tree Release**

To release recently transplanted ornamentals from grass weed competition a herbicide selective only to grasses could be used such as Gallant or Centurion. These herbicides could be sprayed over the foliage of ornamentals with no effect,

except for cabbage trees, flax and certain other sensitive plants. As these herbicides affect grasses only it is possible to use Simazine soon after planting as a soil residual herbicide to prevent establishment of broadleaf weeds. Simazine needs to be more carefully applied at a particular rate but any herbicide striking the foliage will have little effect.

The use of herbicide can reduce hand mowing costs around ornamentals until they are large enough to safely use Roundup around the base.

5.6 **Poring insect activity**

Porina is a caterpillar that lives underground but grazes grasses at the surface. Damage from porina can be minimised by fertilizing with ammonium sulphate in March and early April on the dry ridges favoured by porina. By promoting extra grass growth porina damage is minimised.

6. **LAKE ROTORUA CAMP GROUND - NELSON LAKES NATIONAL PARK**

Present: Dave Waters

6.1. **Grass species to reduce mowing**

This site could definitely benefit from re-grassing to reduce mowing costs.

The turf is dominated by pasture type ryegrasses which produce excessive vertical growth over summer and are difficult to mow.

6.2. **Turf establishment**

I would recommend re-grassing with a 3:1 or 5:1 fescue and browntop mixture at 15g/m² after first destroying the turf cover with Roundup. The Roundup would have to be applied before the end of February to the camp site and possibly a small part of the lawn area by the lake front where ryegrass is dominant. Work up the area as soon as the turf browns off. Try to use chain or diamond leaf tine harrows to prepare a smooth surface without bringing too many stones to the surface.

Fertilize and establish browntop and fescue as outlined previously. **Note:** *that a sowing date no later than the second week of March is visualised.*

It is most important that the existing ryegrass is properly killed. In this respect see whether an earlier Roundup spray can be applied and make a second application if green foliage is still visible after two weeks.

A temporary camp ground will have to be established elsewhere for the Easter campers but the camp ground will be back in use by Christmas.

6.3 **Fertilizer**

Fertilize with ammonium sulphate at $2\text{kg}/100\text{m}^2$ after 3 weeks, 6 weeks, 9 weeks and again in September, October and November. Fertilizer should be applied during or immediately before light rainfall.

6.4 **Mowing equipment**

Mowing costs can be reduced by matching the correct equipment to the job. For example the ride on Husquvarna mowers are domestic lawn mowers made for mowing smooth lawns. They should not be used for rough mowing where a tractor mounted mower is more suitable. I recommend that the Lake Rotorua mower be retained at the Lake and heavier duty mowing equipment be used for other mowing elsewhere.

7. **GRASS SPECIES TRIALS**

7.1 **Introduction**

In my experience whatever grass species were sown would quickly be invaded and revert to the existing turf composition in 2-5 years. The exercise is not likely to be cost effective. Browntop is particularly invasive and hard to eliminate from a seedbed, particularly in a high rainfall area.

7.2 **Trial Design**

If a new area was to be established I would recommend trialling plots of either hard or chewings fescue alone at $15\text{-}20\text{g}/\text{m}^2$ or using a 3:1 or 5:1 mixture of fine fescue and browntop at $15\text{-}20\text{g}/\text{m}^2$. Even if only a small quantity of seed is required I would recommend sourcing it from a seed company and not a home/lawn garden shop. Fungicide or Superstrike coated seed is satisfactory but avoid lime coated seed commonly sold at garden centres. The quality and value for money is poor.

If a new area became available I would recommend laying out a trial using a randomised block design with four replicates and a plot size of 2m x 2m. I suggest using 4 plots per block.

- i) 'SR 3000" or 'Serra' hard fescue at $20\text{g}/\text{m}^2$.
- ii) 'Lobi' or 'Enjoy' or 'Dawson' or any other named fine fescue (Chewings or Red fescue) at $20\text{g}/\text{m}^2$.
- iii) 3:1 or 5:1 mixture of fine fescue (Chewings or red) and browntop at $20\text{g}/\text{m}^2$.
- iv) Browntop alone at $7\text{g}/\text{m}^2$.

Note: *Plot seeding rates are approx. 25 % higher than actual field rates.*

The percentage ground cover and species composition could be evaluated after 1 month, 3 months, 6 months, 1 year, 2, 3 and 4 years.

7.3 **Trial Management**

Superphosphate should be applied at seeding time at **4kg/100m²** and nitrogen as urea at **1kg/100m²** three weeks after germination. No other fertilizer should be applied through the trial period.

7.4 **Turf Establishment**

The key to successful turf establishment is to kill existing perennial grass vegetation then to prepare a firm smooth seedbed.

I recommend spraying Roundup one month before sowing and allowing vegetation to rot down. Spray a second time if regrowth occurs.

Cultivate the area in dry or moist but firm soil conditions (not wet condition) preferably by repeatedly harrowing the surface but if necessary cultivate using a rotary hoe or similar to no more than 75-100mm depth.

After cultivating finish off by repeatedly harrowing and dragging levelling boards or a frame until a firm, fine level surface has been achieved.

Broadcast superphosphate on the surface and lightly harrow it in using chain harrows. Repeat the operation with the seed. For browntop seed alone use a sack or carpet to drag in the seed.

Sow seed in mid-late March or early April once the soil is reliably moist from autumn rains.

8. **CONCLUSION**

In my view there is the need to think laterally on the issue of mowing costs. The problem is that travel takes up 1½ hours for an area taking ½ hour to mow.

Possibilities included having some mowing done by contract over summer or year round. The use of growth regulators could be considered to suppress growth and eliminate the need for mowings for 2 months. I would only recommend this option if other options proved impractical since they are not a widely used technology in New Zealand and are likely to be costly. I recommend the use of Paclobutrazol 'Cultar' at 1.0kg a.i./ha plus Maleic hydrazide 'Super Sprout Stop' at 4.0kg a.i./ha.

Another way to reduce mowing costs is to reduce the area being mowed. It is good to see plantings are planned and they can reduce mowing costs where they reduce the mown area.

A proposal to feather the edges of a stream in the reserve is a good idea to reduce mowing costs short term but longer term densely plant this difficult to mow area.

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